

Sheet (2)
Fourier transform

Elkaws

① Find the Fourier transform for the following functions.

1 ⊗ $g(t) = A \text{rect}\left(\frac{t}{\tau}\right)$ ✓ 2 ⊗ $g(t) = e^{-t} \cdot u(t)$ ✓

3 ⊗ $g(t) = e^t \cdot u(-t)$ ✓ 4 ⊗ $g(t) = e^{-|t|}$ ✓ ✓

5 ⊗ $g(t) = e^{-\alpha t} \cdot u(t)$ ✓ 6 ⊗ $g(t) = A \text{rect}\left(\frac{t-t_0}{\tau}\right)$ ✓

7 ⊗ $g(t) = e^{-\alpha(t-t_0)} \cdot u(t)$ ✓ 8 ⊗ $g(t) = \text{sgn}(t)$ ✓ ✓

9 ⊗ $g(t) = u(t)$ ✓ 10 ⊗ $g(t) = A \text{rect}\left(\frac{t}{\tau}\right) e^{-j2\pi f_0 t}$ ✓

11 ⊗ $g(t) = A \text{rect}\left(\frac{t}{\tau}\right) \cos 2\pi f_c t$ ✓

12 ⊗ $g(t) = A \text{rect}\left(\frac{t}{\tau}\right) \sin \omega_c t$ ✓ ✓

13 ⊗ $g(t) = A \text{sinc} 2\omega t$ ✓ ✓

14 ⊗ $g(t) = \text{sinc} 100t$ ✓

15 ⊗ $g(t) = 3 \text{sgn}(t-3)$ ✓ ✓ 16 ⊗ $g(t) = e^{-\alpha(t-100)}$ ✓ ✓

17 ⊗ $g(t) = \delta(t)$ ✓

18 ⊗ $g(t) = 10\delta(t-50)$ ✓ ✓

19 ⊗ $g(t) = A$ ✓ ✓

20 ⊗ $g(t) = 100$ ✓

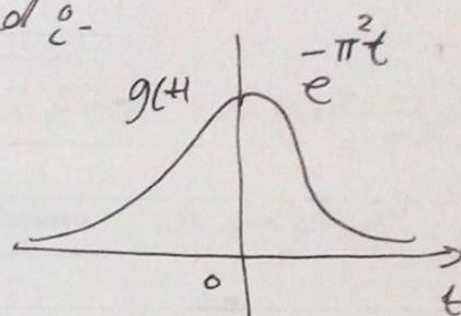
21 ⊗ $g(t) = e^{-j2\pi f_0 t}$ ✓

22 ⊗ $g(t) = A_c \cos 2\pi f_c t$

23 ⊗ $g(t) = 20 \text{sinc} 20t$ ✓ ✓

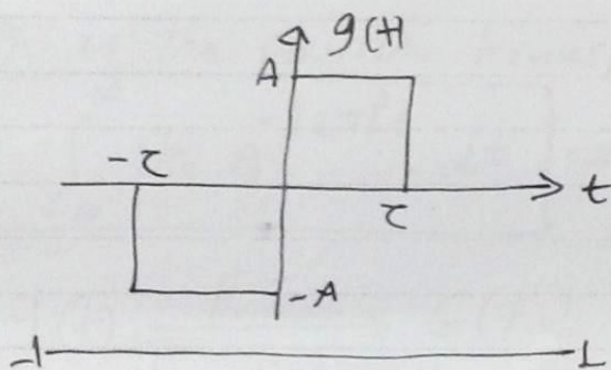
2) For the Gaussian pulse find:-

- a) $G(f)$
- b) area under Curve $g(t)$
- c) area under Curve $G(f)$

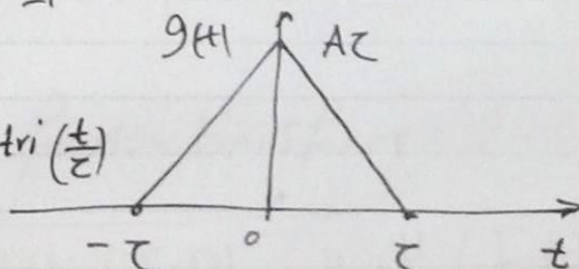


3) Find the Fourier transform for:-

a)



b) $g(t) = A \text{tri}\left(\frac{t}{2}\right)$



c)

